

ETHACURE® 420

 ALBEMARLE®

E F F E C T I V E C U R E - R A T E C O N T R O L



ETHACURE® 420—effective cure-rate control for polyurea and hybrid systems

Albemarle's ETHACURE® liquid curatives deliver exceptional product benefits, including ease of mixing, metering and dispensing; adjustable reaction times; zero dust exposure; and improved product performance. To enhance the versatility and cure-rate control of polyurea- and hybrid-based coatings, adhesives, sealants and elastomers, we offer **ETHACURE 420, a proven aromatic diamine chain extender.**

Cure-Rate Flexibility

ETHACURE® 420 chain extender is designed for use with other Albemarle ETHACURE® curatives for cure-rate adjustment. Formulators can easily produce the soft elastomers needed in caulks and sealants and appreciate the way ETHACURE® 420 curative improves pot life.

Smoother Finishes that Adhere Better

Systems containing ETHACURE® 420 chain extender have relatively low viscosity. Low viscosity permits higher flow rates that can improve coating adhesion and penetration on rough surfaces where thicker coatings might tend to bridge. Coating finishes are smoother and more attractive, without that undesirable "orange peel".

Stronger, More Elastic Coatings

Applicators can expect coatings formulated with ETHACURE® 420 chain extender to have excellent tensile strength. These formulations are excellent choices in severe-service applications such as containment barriers, floors, parking decks and bridges.

Polyurea Joint Sealant Formulations with ETHACURE® 420

ETHACURE® 420 curative's unique property as a slow reacting diamine makes it an effective curing agent for commercial joint sealant applications where long working times (5-10 minutes) are required. The formulations below are all 1:1 volume systems and can be applied using a dual cartridge with static mix tube or by application through a pump unit, such as AST equipment. The first two formulations are harder versions for indoor use and the third formulation is a softer version for outdoor applications.

Sealant Formulations for Indoor and Outdoor Use

Application	Indoor Use	Indoor Use	Outdoor Use
Hardness, Shore A	85	75	45
Isocyanate Side Components (pbw):			
Rubinate® 9484	100	95	-
Mondur® 1437	-	-	90
Mondur® MRS-2 (or MRS-4)	-	-	5
Plasticizer (DOP, DINP or DOA)	-	5	5
Resin Side Components (pbw):			
Jeffamine® D-2000	31	35	42
PPG 2000	20	22	25
ETHACURE® 420	33	28	19
ETHACURE® 100	5	4	3
Stabilizer Package ¹	1.0	1.0	1.0
T-12 Catalyst	0.01	0.01	0.01
Baylith L Paste	5	5	5
SilQuest A-1100	0.8	0.8	0.8
Pigment	5	5	5

¹Stabilizer Package = Blend of 50% Ethanox® 4716, 25% Tinuvin® 292, and 25% Tinuvin® 1130.

Curing Speed Adjustment with ETHACURE® 420

The cure speed of polyurea systems can be tailored to meet application requirements by addition of the slower reacting ETHACURE® 420 curative (secondary diamine) to the faster reacting ETHACURE® 100 curative (primary diamine). Physical properties of a MDI-based system cured with varying ratios of ETHACURE® 420 and ETHACURE® 100 curatives are shown. Gel times varied from less than 2 seconds up to 383 seconds.

Tailored Curing Speed

A Side

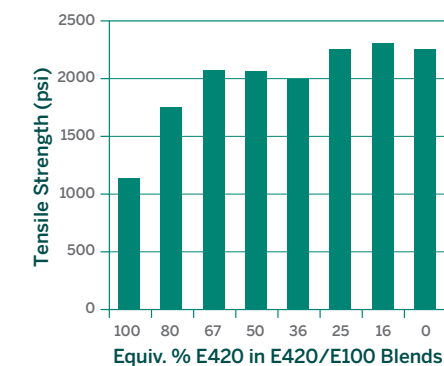
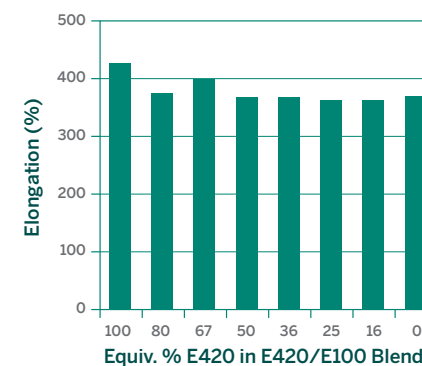
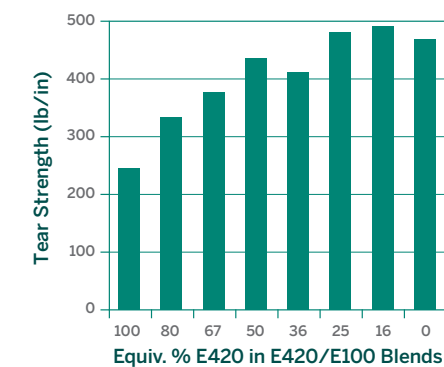
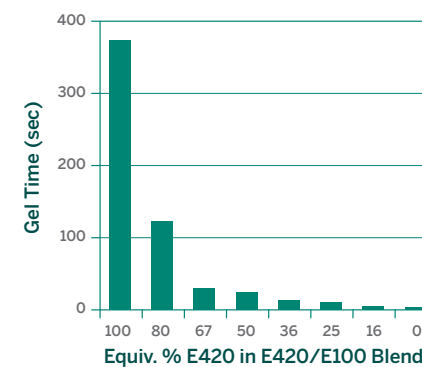
Rubinate® 9480	100	100	100	100	100	100	100	100
(14.9% NCO MDI)								

B Side

ETHACURE® 100	0	6.2	10.2	15.0	18.9	22.1	24.5	28.1
ETHACURE® 420	54.8	43.1	35.5	26.2	18.9	12.8	8.1	0
Jeffamine® D-2000	35.2	40.8	44.3	48.8	52.3	55.1	57.4	66.1
Jeffamine® D-5000	10.0	10.0	10.0	10.0	10.0	10.0	10.0	5.8
Equiv. ratio E420:E100	100:0	80:20	67:33	50:50	36:64	25:75	16:84	0:100
Gel Time (sec)	383	123	24	18	10	7	2	<2

Physical Properties of ETHACURE® 420 and ETHACURE® 100 Systems

Equiv. ratio E420:E100	100:0	80:20	67:33	50:50	36:64	25:75	16:84	0:100
Shore A Hardness								
1 sec./10 sec.	88/78	95/91	92/91	97/96	95/95	98/97	99/98	99/98
Shore D Hardness								
1 sec./10 sec.	31/22	39/31	40/35	46/39	45/40	47/42	49/44	45/40
Tensile Str. (psi)	1,170	1,800	2,080	2,090	2,010	2,270	2,370	2,310
Elongation (%)	430	380	400	370	370	360	360	370
Stress@100%, psi	450	780	970	1,050	1,070	1,230	1,330	1,300
Stress@300%, psi	820	1,440	1,670	1,790	1,740	1,980	2,090	2,030
Tear strength, lb/in	240	340	380	420	410	480	490	460



ETHACURE® 420
An exceptional solution for:

- TRUCK BED LINERS
- BRIDGE COATINGS
- CONCRETE COATINGS
- CONTAINMENT LINERS
- PIPE COATINGS AND LINERS
- TANK COATINGS AND LINERS
- ROOFING COATINGS
- FLOORING COATINGS
- SEALANTS AND CAULKS



Typical Properties of ETHACURE® 420

Viscosity (cSt @ 20° C)	579
Specific Gravity (@ 20° C)	0.99
Bulk Density (lb/gal)	8.3
Amine Eq. Wt. (g/eq)	155
Water (wt %)	<0.08
Solubility (wt %, @ 25° C)	
Acetone	miscible
Methanol	miscible
Toluene	miscible

These properties are typical but do not constitute a specification either in part or as a whole. Specification data is available on request from sales, customer service or customer technical service.

Get the full ETHACURE® 420 story at curatives.com.

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